CLAIMS

What is claimed is:

1   1.   A method of creating a packet using a digital signal processor, the method comprising

2   the steps of:

3   receiving call set-up information;

4   receiving call data;

5   creating a data portion of the packet using the call data;

6   creating one or more headers using the call data and the call set-up information; and

7   creating the packet by attaching the one or more headers to the data portion of the

8   packet.

1   2.   The method as recited in claim 1, further comprising the step of updating at least one

2   of the headers based on a change in the call data or network topology.

1   3.   The method as recited in claim 1, further comprising the step of transmitting the

2   packet to a switch fabric.

1   4.   The method as recited in claim 1, wherein the one or more headers comprise a real

2   time transport protocol header.

1   5.   The method as recited in claim 4, wherein the real time transport protocol header is

2   determined by the call data.

1   6.   The method as recited in claim 1, wherein the one or more headers comprise a user

2   datagram protocol header.

1   7.   The method as recited in claim 6, wherein the user datagram protocol header is

2   determined by the call data.

1   8.   The method as recited in claim 1, wherein the one or more headers comprise an

2   Internet protocol header.

1   9.   The method as recited in claim 8, wherein the Internet protocol header is created from

2   the call set-up information.

1   10.   The method as recited in claim 1, wherein the one or more headers comprise a media

2   access control header.

1   11.   The method as recited in claim 10, wherein the media access control header is created

2   from the call set-up information.

1   12.   The method as recited in claim 1, wherein the step of creating a data portion of the

2   packet using the call data comprises the steps of:

3   compressing the call data;

4   creating one or more digital samples from the compressed call data; and

5   creating the data portion of the packet using the one or more digital samples.

1   13.   The method as recited in claim 1, further comprising the steps of:

2   requesting an overlay based on the call set-up information; and

3   receiving and loading the overlay.

1   14.   An apparatus comprising:

2   an array of digital signal processors;

3   each digital signal processor programmed to receive call set-up information, receive

4   call data, create a data portion of a packet using the call data, create one or more headers

5   using the call data and the call set-up information, and create the packet by attaching the one

6   or more headers to the data portion of the packet.

1   15.   The apparatus as recited in claim 14, wherein the one or more headers comprise a real

2   time transport protocol header.

1   16.   The apparatus as recited in claim 15, wherein the real time transport protocol header

2   is determined by call data.

1   17.   The apparatus as recited in claim 14, wherein the one or more headers comprise a

2   user datagram protocol header.

1   18.   The apparatus as recited in claim 17, wherein the user datagram protocol header is

2   determined by the call data.

1   19.   The apparatus as recited in claim 14, wherein the one or more headers comprise an

2   Internet protocol header.

1   20.   The apparatus as recited in claim 19, wherein the Internet protocol header is created

2   from the call set-up information.

1   21.   The apparatus as recited in claim 14, wherein the one or more headers comprise a

2   media access control header.

1   22.   The apparatus as recited in claim 21, wherein the media access control header is

2   created from the call set-up information.

1   23.   The apparatus as recited in claim 14, wherein each digital signal processor creates a

2   data portion of the packet using the call data by compressing the call data, creating one or

3   more digital samples from the compressed call data, and creating the data portion of the

4   packet using the one or more digital samples.

1   24.   The apparatus as recited in claim 14, wherein each digital signal processor is further

2   programmed to request an overlay based on the call set-up information, and receive and load

3   the overlay.

1   25.   The apparatus as recited in claim 14, wherein each digital signal processor is further

2   programmed to update at least one of the headers based on a change in the call data or

3   network topology.

1   26.   A communications switch comprising:

2   one or more cards having ingress, signal processing and egress functions, wherein the

3   signal processing function comprises one or more arrays of digital signal processors, each

4   digital signal processor programmed to receive call set-up information, receive call data,

5   create a data portion of a packet using the call data, create one or more headers using the call

6   data and the call set-up information, and create the packet by attaching the one or more

7   headers to the data portion of the packet;

8   one or more control cards containing one or more processors;

9   a switch fabric communicably coupling the one or more cards and the control cards;

10   and

11   a TDM bus communicably coupling the one or more cards and the control cards.

1   27.   The communications switch as recited in claim 26, wherein one or more ingress cards

2   communicably coupled to the switch fabric and the TDM bus provide the ingress function of

3   the one or more cards.

1   28.   The communications switch as recited in claim 26, wherein one or more egress cards

2   communicably coupled to the switch fabric and the TDM bus provide the egress function of

3   the one or more cards.

1   29.   The communications switch as recited in claim 26, wherein one or more signal

2   processing cards communicably coupled to the switch fabric and the TDM bus provide the

3   signal processing function of the one or more cards.

1   30.   The communications switch as recited in claim 26, wherein each digital signal

2   processor is further programmed to request an overlay based on the call set-up information,

3   and receive and load the overlay.

1   31.   The communications switch as recited in claim 26, wherein the one or more headers

2   comprise a real time transport protocol header.

1   32.   The communications switch as recited in claim 31, wherein the real time transport

2   protocol header is determined by the call data.

1   33.   The communications switch as recited in claim 26, wherein the one or more headers

2   comprise a user datagram protocol header.

1   34.   The communications switch as recited in claim 33, wherein the user datagram

2   protocol header is determined by the call data.

1   35.   The communications switch as recited in claim 26, wherein the one or more headers

2   comprise an Internet protocol header.

1   36.   The communications switch as recited in claim 31, wherein the Internet protocol

2   header is created from the call set-up information.

1   37.   The communications switch as recited in claim 26, wherein the one or more headers

2   comprise a media access control header.

1   38.   The communications switch as recited in claim 33, wherein the media access control

2   header is created from the call set-up information.

1   39.   The communications switch as recited in claim 26, wherein each digital signal

2   processor creates a data portion of the packet using the call data by compressing the call data,

3   creating one or more digital samples from the compressed call data, and creating the data

4   portion of the packet using the one or more digital samples.

1   40.   The communications switch as recited in claim 26, wherein each digital signal

2   processor updates at least one of the headers based on a change in the call data or network

3   topology.